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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,590	12/21/2001	Man-Ho L. Lee	20206-128 (P01-3724)	4554
25696	7590	09/28/2005	EXAMINER	
OPPENHEIMER WOLFF & DONNELLY P. O. BOX 10356 PALO ALTO, CA 94303			PWU, JEFFREY C	
			ART UNIT	PAPER NUMBER
			2143	

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,590

Applicant(s)

LEE ET AL.

Examiner

Jeffrey C. Pwu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/12/02
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

RD

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 13 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 is vague and indefinite because it is unclear of what test is being conducted in the limitation "if the gathered information pertaining to each of said switch port passes each test in at least a subset of the plurality of tests".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Dobbins et al. (U.S. 5,825,772), "Dubbins".

Dubbins teaches claims:

1. A method of verifying the configuration of a switching fabric (fig.16) that interconnects a plurality of end nodes into a cluster, the switching fabric including at least one switch

and a plurality of links, each interconnected end node having a fabric management process, each switch having a plurality of ports, the method comprising:

obtaining, from the switch, stored information and saving the stored information so as to be accessible to the fabric management process, the stored information being gathered by said switch; (abstract; "A distributed call rerouting service is provided wherein if a link on an active path fails, each switch receives a topology change notification and unmaps any connection involving the failed link")

determining from the stored information whether or not a link is connected to any one of said switch ports; (abstract; "The best route metrics may be combined with best path metrics to determine a path from a first access switch to an egress switch connected to the external network.")

for each switch port having a link connected thereto, determining whether the stored information gathered by said switch and pertaining to each said switch port is valid; (abstract)

for each switch port for which the gathered information is determined to be valid, performing a plurality of tests on the gathered information pertaining to each said switch port; (col.13, line 47-col.14, line 67)

if the gathered information pertaining to each said switch port passes each test in at least a subset of the plurality of tests, enabling each said switch port for data traffic; and otherwise, (col.13, line 47-col.14, line 67)

disabling each said switch port for data traffic. (col.13, line 47-col.14, line 67)

2. A method of verifying as recited in claim 1, wherein the stored information is gathered periodically by the switch. (col.13, line 47-col.14, line 67)

3. A method of verifying as recited in claim 1, wherein any neighboring port connected to any switch port belongs to an expected fabric; and wherein the plurality of tests on the gathered information includes a test to determine whether the neighboring port belongs to the expected fabric. (col.13, line 47-col.17, line 2)

4. A method of verifying as recited in claim 1, wherein any neighboring port connected to any switch port has an expected port number; and wherein the plurality of tests on the gathered information includes a test to determine whether the neighboring port has the expected port number. (col.13, line 47-col.17, line 2)

5. A method of verifying as recited in claim 1, wherein any switch having a port connected to said switch port has a global unique identification (GUID) number; (figs.3a, 3b, "switch port"; figs. 6a-6c) and wherein the plurality of tests on the gathered information includes a test to determine whether the global unique identification of the neighboring port has a valid format. (col.16, lines 40-col.17, line 43)

6. A method of verifying as recited in claim 1, wherein any switch, having a port connected to said switch port, has a configuration version id, a configuration tag and a manufacturing part number; and wherein the plurality of tests on the gathered

information includes a test to determine whether the configuration version id, configuration tag and manufacturing part number of the switch connected to said switch port have valid formats. (col.16, lines 40-col.17, line 43)

7. A method of verifying as recited in claim 1, wherein there is a single bundle in the switching fabric, said bundle including two or more links that interconnect neighboring switches. (col.16, lines 40-col.17, line 43)

8. A method of verifying as recited in claim 7, wherein any neighboring port connected to said switch port is part of the bundle, each port in the bundle having the same GUID; and wherein the plurality of tests on the gathered information includes a test to determine the GUID of the neighboring port connected to said switch port to determine whether the neighboring port is properly in the bundle. (col.13, line 47-col.14, line 67)

9. A method of verifying as recited in claim 1, wherein there are at least two bundles in the switching fabric, each said bundle including two or more links that interconnect neighboring switches. (see fig.1, switching fabrics)

10. A method of verifying as recited in claim 7, wherein any neighboring port connected to said switch port is part of the first bundle, each port in the bundle having the same GUID; and wherein the plurality of tests on the gathered information includes a test to determine the GUID of the neighboring port connected to said switch port to determine

whether the neighboring port is properly in the first bundle and not in the second bundle.
(see GUID of port switches of figs 3a-3b)

11. A method of verifying as recited in claim 1, wherein any switch, having a port connected to said switch port, has a configuration tag to uniquely specify an expected cluster topology ID and an expected position ID of the switch therein; and wherein the plurality of tests on the gathered information includes a test to determine from the configuration tag for the switch connected to said switch port whether the switch is configured for the expected cluster topology and is in the expected position in the cluster topology. (col.13, line 47-col.14, line 67)

12. A method of verifying as recited in claim 1, wherein any switch, having a port connected to said switch port, has a firmware release revision, firmware major revision, firmware minor revision, configuration major revision, and configuration minor revision; and wherein the plurality of tests on the gathered information includes a test to determine whether the firmware release revision, firmware major revision, firmware minor revision, configuration major revision, and configuration minor revision of the switch connected to said switch port are equal to or higher than a minimum specified level for compatibility. (col.13, line 47-col.14, line 67)

13. An end node interconnected by a switching fabric to a plurality of other end nodes of a cluster, the switching fabric including at least one switch and a plurality of links, each

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switch having a plurality of ports, the end node comprising; one or more processing units, each unit having a processor and a memory; and at least one port for connecting one or more processing units to the switching fabric; wherein the memory of at least one of the processing units of each end node contains a fabric management process that is configured to: obtain, from the switch, stored information and save the stored information so as to be accessible to the fabric management process, the stored information being gathered by said switch; determine, from the stored information, whether or not a link is connected to any one of said switch ports; determine, for each switch port having a link connected thereto, whether the stored information gathered by said switch and pertaining to each said switch port is valid; perform, for each switch port for which the gathered information is determined to be valid, a plurality of tests on the gathered information pertaining to each said switch port; enable, if the gathered information pertaining to each said switch port passes each test in at least a subset of the plurality of tests, each said switch port for data traffic; and disable each said switch port for data traffic, otherwise. (claim 13 is similarly rejected as in claim 1)

14. An end node as recited in claim 13, wherein the stored information is gathered periodically by the switch. (col.13, line 47-col.17, line 2)

15. An end node as recited in claim 13, wherein the fabric management process is configured to obtain, from the switch, stored information each time a recurring, prescribed interval has lapsed, (col.13, line 47-col.17, line 2)

16. An end node as recited in claim 15, wherein the prescribed interval is about 60 to 180 seconds. (col.13, line 47-col.17, line 2)

17. An end node as recited in claim 13, wherein the fabric management process is configured to obtain, from the switch, stored information each time the fabric management process detects that a link alive status has returned to a link that connects the end node directly to a switch. (col.13, line 47-col.17, line 2)

18. A switch comprising a plurality of ports each configured to be connected to a port of another switch or a port of an end node in a cluster; routing hardware for routing packets from any of said plurality of switch ports to any other of said plurality of switch ports, said routing hardware including selective routing hardware control logic for enabling or disabling the transfer of data packets on each of said plurality of ports; link alive hardware logic configured to allow the end nodes and switches to determine whether or not a port is connected to a live link; (see "link State Topology Exchange") an interval timer for repeatedly timing a scan interval and indicating the expiration thereof, a first memory having a program resident therein that includes a routine that is operative, upon the expiration of the scan interval, to: select, in turn, each one of said plurality of ports; determine, for each selected port, whether or not a gather info flag is set; and for each selected port connected to a live link and having the gather info flag set, construct a gather neighbor info request, send the constructed request over each

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said selected port, and receive and store any response from any port connected to each said selected port; said program further including a routine that is operative to return, upon request, via one of said plurality of ports, all stored responses; a processor connected to the first memory, for executing programs resident in the first memory; a second memory having a configuration file resident therein, said configuration file including a routing table that specifies how packets are to be routed between said plurality of ports. (col.13, line 47-col.14, line 67)

19. A switch as recited in claim 18, wherein the program resident in the first memory is further operative, upon the switch being powered on, or upon the switch receiving a hard reset command from an operator, to disable all switch ports for data traffic.

20. A switch as recited in claim 18, wherein the program resident in the first memory is further operative, upon the switch detecting a loss of link alive on a port, to disable said port for data traffic. (col.13, line 47-col.17, line 2)

21. A switch as recited in claim 18, wherein the program resident in the first memory is further operative, immediately after the switch is powered on or when the switch receives a hard reset command from an operator, to: select, in turn, each one of said plurality of ports; determine, for each selected port, whether or not a gather info flag is set; and for each selected port connected to a live link and for which the gather info flag is set, construct a gather neighbor info request, send the constructed request over each

said selected port, and receive and store any response from any port connected to each said selected port. (col.13, line 47-col.14, line 67)

22. A switch as recited in claim 18, wherein the program resident in the first memory is further operative, upon the switch detecting return of link alive on a port, to: determine, for said port, whether or not a gather info flag is set; if the gather info flag is set for said port, construct a `gather neighbor info request, send the constructed request over said port, and receive and store any response from any port connected to said port. (col.13, line 47-col.14, line 67)

23. A switch as recited in claim 18, wherein the configuration file in the second memory includes data parameters for each port that specify expected neighbor data values to be returned by a device connected to each particular port. (col.13, line 47-col.17, line 2)

24. A switch as recited in claim 18, further comprising an internal port configured to transfer fabric management packets; and wherein selective routing hardware control logic is further configured to keep the internal port enabled for transferring of fabric management packets to and from any of the other switch ports, including ports that are disabled for data traffic. (col.13, line 47-col.14, line 67)

27. A switch as recited in claim 18, wherein the response from said gather neighbor info` request includes the port number of any neighboring switch having a port

connected to one of said plurality of ports. (col.13, line 47-col.17, line 2)

28. A switch as recited in claim 18, wherein the response from said `gather neighbor info` request includes a fabric id of any neighboring switch having a port connected to one of said plurality of ports. (col.13, line 47-col.17, line 2)

29. A switch as recited in claim 18, wherein the response from said `gather neighbor info` request includes a global unique identification number of any neighboring switch having a port connected to one of said plurality of ports. (col.13, line 47-col.17, line 2)

30. A switch as recited in claim 18, wherein the response from said `gather neighbor info` request includes a manufacturing part number of any neighboring switch having a port connected to one of said plurality of ports. (col.13, line 47-col.17, line 2)

31. A switch as recited in claim 18, wherein the response from said `gather neighbor info` request includes a version ID of a configuration file resident in any neighboring switch having a port connected to one of said plurality of ports. (col.13, line 47-col.17, line 2)

32. A switch as recited in claim 18, wherein the response from said `gather neighbor info` request includes a configuration tag of a configuration file resident in any neighboring switch having a port connected to one of said plurality of ports. (col.13, line

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47-col.17, line 2)

33. A switch as recited in claim 32, wherein the configuration tag encodes a cluster topology ID and a position ID indicating the position the switch occupies in the cluster topology. (col.13, line 47-col.17, line 2)

34. A switch as recited in claim 18, wherein the response from said `gather neighbor info request includes a release version or version ID of a firmware program resident in any neighboring switch having a port connected to one of said plurality of ports. (col.13, line 47-col.17, line 2)

35. A switch as recited in claim 18, wherein the response from said gather neighbor info` request includes major and minor revision numbers of a firmware program resident in any neighboring switch having a port connected to one of said plurality of ports. (col.13, line 47-col.17, line 2)

36. A switch as recited in claim 18, wherein the response from said `gather neighbor info` request includes major and minor revision numbers of a configuration file in any neighboring switch having a port connected to one of said plurality of ports. (col.13, line 47-col.17, line 2)

37. A method of gathering port neighbor information in a switch having a plurality of

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ports, each configured to be connected to a port of another switch or port of an end node in a cluster, routing hardware for routing packets from any of said plurality of switch ports to any other of said plurality of switch ports, an interval timer for repeatedly timing a scan interval and indicating the expiration thereof, a memory having a configuration file resident therein, said configuration file including a routing table that specifies how packets are to be routed between said plurality of ports, the method comprising the steps of: upon the expiration of the scan interval, selecting, in turn, each one of said plurality of ports; determining, for each selected port, whether or not the port has live link and whether or not a gather info flag is set for the port; and for each selected port connected to a live link and having the gather info flag set, constructing a 'gather neighbor info request, sending the constructed request over each said selected port, and receiving and storing any response from any port connected to each said selected port; and upon receiving a request for the stored responses, returning the stored responses via one of said plurality of ports. (Claim 37 is similarly rejected as in claim 1-12)

38. A computer readable medium having computer-executable instructions for performing a method of verifying the configuration of a switching fabric that interconnects a plurality of end nodes into a cluster, the switching fabric including at least one switch and a plurality of links, each interconnected end node having a fabric management process, each switch having a plurality of ports, the method comprising: obtaining, from the switch, stored information and saving the stored information so as to

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be accessible to the fabric management process, the stored information being gathered by said switch; determining from the stored information whether or not a link is connected to any one of said switch ports; for each switch port having a link connected thereto, determining whether the stored information gathered by said switch and pertaining to each said switch port is valid; for each switch port for which the gathered information is determined to be valid, performing a plurality of tests on the gathered information pertaining to each said switch port; if the gathered information pertaining to each said switch port passes each test in at least a subset of the plurality of tests, enabling each said switch port for data traffic; and otherwise, disabling each said switch port for data traffic. (Claim 38 is similarly rejected as in claim 1-12)

Allowable Subject Matter

5. Claims 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey C. Pwu whose telephone number is 571-272-6798.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



9/24/05
JEFFREY PWU
PRIMARY EXAMINER